

#4

1801.app  
SEQUENCE LISTING

&lt;110&gt; Warner-Lambert

<120> Secreted soluble alpha2 delta-2, alpha2 delta-3, alpha2  
delta-4 calcium channel subunit polypeptides and  
screening assays using same

&lt;130&gt; 180

&lt;140&gt;

&lt;141&gt;

&lt;160&gt; 28

&lt;170&gt; PatentIn Ver. 2.1

&lt;210&gt; 1

&lt;211&gt; 3186

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1

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&lt;211&gt; 3248

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 2

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## 1801.app

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&lt;210&gt; 3

&lt;211&gt; 3327

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3

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&lt;210&gt; 4

&lt;211&gt; 1062

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4

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## 1801.app

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## 1801.app

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Tyr 435	Asp Val Thr Pro	Leu Gln Trp Met 440	Ala Cys Ala Asn Lys Gly Tyr 445	
Tyr 450	Phe Glu Ile Pro	Ser Ile Gly Ala Ile Arg 455	Ile Asn Thr Gln Glu 460	
Tyr 465	Leu Asp Val Leu	Gly Arg Pro Met Val 470	Leu Ala Gly Lys Glu Ala 475	480
Lys 485	Gln Val Gln Trp	Thr Asn Val Tyr Glu 490	Asp Ala Leu Gly Leu Gly 495	
Leu 500	Val Val Thr Gly	Thr Leu Pro Val Phe Asn Leu Thr Gln Asp Gly 510		
Pro 515	Gly Glu Lys Lys	Asn Gln Leu Ile Leu Gly Val Met Gly Ile Asp 525		
Val 530	Ala Leu Asn Asp	Ile Lys Arg Leu Thr Pro Asn Tyr Thr Leu Gly 535	540	
Ala 545	Asn Gly Tyr Val	Phe Ala Ile Asp Leu Asn Gly Tyr Val Leu Leu 550	555	560
His 565	Pro Asn Leu Lys	Pro Gln Thr Thr Asn Phe Arg Glu Pro Val Thr 570	575	
Leu 580	Asp Phe Leu Asp	Ala Glu Leu Glu Asp Glu Asn Lys Glu Glu Ile 585	590	
Arg 595	Arg Ser Met Ile	Asp Gly Asn Lys Gly His Lys Gln Ile Arg Thr 600	605	
Leu 610	Val Lys Ser Leu	Asp Glu Arg Tyr Ile Asp Glu Val Thr Arg Asn 615	620	
Tyr 625	Thr Trp Val Pro	Ile Arg Ser Thr Asn Tyr Ser Leu Gly Leu Val 630	635	640
Leu 645	Pro Pro Tyr Ser	Thr Phe Tyr Leu Gln Ala Asn Leu Ser Asp Gln 650	655	
Ile 660	Leu Gln Val Lys	Tyr Phe Glu Phe Leu Leu Pro Ser Ser Phe Glu 665	670	

## 1801.app

Ser	Glu	Gly	His	Val	Phe	Ile	Ala	Pro	Arg	Glu	Tyr	Cys	Lys	Asp	Leu
		675					680					685			
Asn	Ala	Ser	Asp	Asn	Asn	Thr	Glu	Phe	Leu	Lys	Asn	Phe	Ile	Glu	Leu
	690					695					700				
Met	Glu	Lys	Val	Thr	Pro	Asp	Ser	Lys	Gln	Cys	Asn	Asn	Phe	Leu	Leu
705					710					715					720
His	Asn	Leu	Ile	Leu	Asp	Thr	Gly	Ile	Thr	Gln	Gln	Leu	Val	Glu	Arg
				725					730					735	
Val	Trp	Arg	Asp	Gln	Asp	Leu	Asn	Thr	Tyr	Ser	Leu	Leu	Ala	Val	Phe
			740					745					750		
Ala	Ala	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Phe	Pro	Asn	Lys	Ala	Ala
		755					760					765			
Glu	Asp	Trp	Thr	Glu	Asn	Pro	Glu	Pro	Phe	Asn	Ala	Ser	Phe	Tyr	Arg
	770					775					780				
Arg	Ser	Leu	Asp	Asn	His	Gly	Tyr	Val	Phe	Lys	Pro	Pro	His	Gln	Asp
785					790					795					800
Ala	Leu	Leu	Arg	Pro	Leu	Glu	Leu	Glu	Asn	Asp	Thr	Val	Gly	Ile	Leu
				805					810					815	
Val	Ser	Thr	Ala	Val	Glu	Leu	Ser	Leu	Gly	Arg	Arg	Thr	Leu	Arg	Pro
			820					825					830		
Ala	Val	Val	Gly	Val	Lys	Leu	Asp	Leu	Glu	Ala	Trp	Ala	Glu	Lys	Phe
		835					840					845			
Lys	Val	Leu	Ala	Ser	Asn	Arg	Thr	His	Gln	Asp	Gln	Pro	Gln	Lys	Cys
	850					855					860				
Gly	Pro	Asn	Ser	His	Cys	Glu	Met	Asp	Cys	Glu	Val	Asn	Asn	Glu	Asp
865					870					875					880
Leu	Leu	Cys	Val	Leu	Ile	Asp	Asp	Gly	Gly	Phe	Leu	Val	Leu	Ser	Asn
				885					890					895	
Gln	Asn	His	Gln	Trp	Asp	Gln	Val	Gly	Arg	Phe	Phe	Ser	Glu	Val	Asp
			900					905					910		
Ala	Asn	Leu	Met	Leu	Ala	Leu	Tyr	Asn	Asn	Ser	Phe	Tyr	Thr	Arg	Lys
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Glu	Ser	Tyr	Asp	Tyr	Gln	Ala	Ala	Cys	Ala	Pro	Gln	Pro	Pro	Gly	Asn
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Leu	Gly	Ala	Ala	Pro	Arg	Gly	Val	Phe	Val	Pro	Thr	Val	Ala	Asp	Phe
945					950					955					960
Leu	Asn	Leu	Ala	Trp	Trp	Thr	Ser	Ala	Ala	Ala	Trp	Ser	Leu	Phe	Gln
				965					970					975	

1801.app

Gln Leu Leu Tyr Gly Leu Ile Tyr His Ser Trp Phe Gln Ala Asp Pro  
                   980                  985                  990

Ala Glu Ala Glu Gly Ser Pro Glu Thr Arg Glu Ser Ser Cys Val Met  
           995                  1000                  1005

Lys Gln Thr Gln Tyr Tyr Phe Gly Ser Val Asn Ala Ser Tyr Asn Ala  
       1010                  1015                  1020

Ile Ile Asp Cys Gly Asn Cys Ser Arg Leu Phe His Ala Gln Arg Leu  
   1025                  1030                  1035                  1040

Thr Asn Thr Asn Leu Leu Phe Val Val Ala Glu Lys Pro Leu Cys Ser  
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Gln Cys Glu Ala Gly Arg  
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Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu  
           35                  40                  45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe  
       50                  55                  60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu  
   65                  70                  75                  80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu  
                   85                  90                  95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro  
           100                  105                  110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp  
       115                  120                  125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe  
       130                  135                  140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val  
   145                  150                  155                  160

1801.app

Tyr	Tyr	Asp	Ala	Lys 165	Ala	Asp	Ala	Glu	Leu 170	Asp	Asp	Pro	Glu	Ser 175	Glu	
Asp	Val	Glu	Arg 180	Gly	Ser	Lys	Ala	Ser 185	Thr	Leu	Arg	Leu	Asp 190	Phe	Ile	
Glu	Asp	Pro 195	Asn	Phe	Lys	Asn	Lys 200	Val	Asn	Tyr	Ser	Tyr 205	Ala	Ala	Val	
Gln	Ile 210	Pro	Thr	Asp	Ile	Tyr 215	Lys	Gly	Ser	Thr	Val 220	Ile	Leu	Asn	Glu	
Leu 225	Asn	Trp	Thr	Glu	Ala 230	Leu	Glu	Asn	Val	Phe 235	Met	Glu	Asn	Arg	Arg 240	
Gln	Asp	Pro	Thr	Leu 245	Leu	Trp	Gln	Val	Phe 250	Gly	Ser	Ala	Thr	Gly 255	Val	
Thr	Arg	Tyr	Tyr 260	Pro	Ala	Thr	Pro	Trp 265	Arg	Ala	Pro	Lys	Lys 270	Ile	Asp	
Leu	Tyr	Asp 275	Val	Arg	Arg	Arg	Pro 280	Trp	Tyr	Ile	Gln	Gly 285	Ala	Ser	Ser	
Pro	Lys 290	Asp	Met	Val	Ile	Ile 295	Val	Asp	Val	Ser	Gly 300	Ser	Val	Ser	Gly	
Leu 305	Thr	Leu	Lys	Leu	Met 310	Lys	Thr	Ser	Val	Cys 315	Glu	Met	Leu	Asp	Thr 320	
Leu	Ser	Asp	Asp	Asp 325	Tyr	Val	Asn	Val	Ala 330	Ser	Phe	Asn	Glu	Lys 335	Ala	
Gln	Pro	Val	Ser 340	Cys	Phe	Thr	His	Leu 345	Val	Gln	Ala	Asn	Val 350	Arg	Asn	
Lys	Lys	Val 355	Phe	Lys	Glu	Ala	Val 360	Gln	Gly	Met	Val	Ala 365	Lys	Gly	Thr	
Thr 370	Gly	Tyr	Lys	Ala	Gly	Phe 375	Glu	Tyr	Ala	Phe	Asp 380	Gln	Leu	Gln	Asn	
Ser 385	Asn	Ile	Thr	Arg	Ala 390	Asn	Cys	Asn	Lys	Met 395	Ile	Met	Met	Phe	Thr 400	
Asp	Gly	Gly	Glu	Asp 405	Arg	Val	Gln	Asp	Val 410	Phe	Glu	Lys	Tyr	Asn 415	Trp	
Pro	Asn	Arg	Thr 420	Val	Arg	Val	Phe	Thr 425	Phe	Ser	Val	Gly	Gln 430	His	Asn	
Tyr	Asp	Val 435	Thr	Pro	Leu	Gln	Trp 440	Met	Ala	Cys	Ala	Asn 445	Lys	Gly	Tyr	
Tyr	Phe	Glu	Ile	Pro	Ser	Ile	Gly	Ala	Ile	Arg	Ile	Asn	Thr	Gln	Glu	

## 1801.app

450					455					460					
Tyr 465	Leu	Asp	Val	Leu	Gly 470	Arg	Pro	Met	Val	Leu 475	Ala	Gly	Lys	Glu	Ala 480
Lys	Gln	Val	Gln	Trp 485	Thr	Asn	Val	Tyr	Glu 490	Asp	Ala	Leu	Gly	Leu	Gly 495
Leu	Val	Val	Thr 500	Gly	Thr	Leu	Pro	Val 505	Phe	Asn	Leu	Thr	Gln 510	Asp	Gly
Pro	Gly	Glu 515	Lys	Lys	Asn	Gln	Leu 520	Ile	Leu	Gly	Val	Met 525	Gly	Ile	Asp
Val 530	Ala	Leu	Asn	Asp	Ile	Lys 535	Arg	Leu	Thr	Pro	Asn 540	Tyr	Thr	Leu	Gly
Ala 545	Asn	Gly	Tyr	Val	Phe 550	Ala	Ile	Asp	Leu	Asn 555	Gly	Tyr	Val	Leu	Leu 560
His	Pro	Asn	Leu	Lys 565	Pro	Gln	Thr	Thr 570	Asn	Phe	Arg	Glu	Pro	Val 575	Thr
Leu	Asp	Phe	Leu	Asp 580	Ala	Glu	Leu	Glu 585	Asp	Glu	Asn	Lys	Glu 590	Glu	Ile
Arg	Arg	Ser 595	Met	Ile	Asp	Gly	Asn 600	Lys	Gly	His	Lys	Gln 605	Ile	Arg	Thr
Leu	Val	Lys	Ser	Leu	Asp	Glu 615	Arg	Tyr	Ile	Asp	Glu 620	Val	Thr	Arg	Asn
Tyr 625	Thr	Trp	Val	Pro	Ile 630	Arg	Ser	Thr	Asn	Tyr 635	Ser	Leu	Gly	Leu	Val 640
Leu	Pro	Pro	Tyr	Ser 645	Thr	Phe	Tyr	Leu	Gln 650	Ala	Asn	Leu	Ser	Asp 655	Gln
Ile	Leu	Gln	Val 660	Lys	Tyr	Phe	Glu	Phe 665	Leu	Leu	Pro	Ser	Ser 670	Phe	Glu
Ser	Glu	Gly 675	His	Val	Phe	Ile	Ala 680	Pro	Arg	Glu	Tyr	Cys 685	Lys	Asp	Leu
Asn 690	Ala	Ser	Asp	Asn	Asn	Thr 695	Glu	Phe	Leu	Lys	Asn 700	Phe	Ile	Glu	Leu
Met 705	Glu	Lys	Val	Thr	Pro 710	Asp	Ser	Lys	Gln	Cys 715	Asn	Asn	Phe	Leu	Leu 720
His	Asn	Leu	Ile	Leu 725	Asp	Thr	Gly	Ile	Thr 730	Gln	Gln	Leu	Val	Glu 735	Arg
Val	Trp	Arg	Asp 740	Gln	Asp	Leu	Asn	Thr 745	Tyr	Ser	Leu	Leu	Ala 750	Val	Phe

1801.app

Ala	Ala	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Phe	Pro	Asn	Lys	Ala	Ala
		755					760					765			
Glu	Asp	Trp	Thr	Glu	Asn	Pro	Glu	Pro	Phe	Asn	Ala	Ser	Phe	Tyr	Arg
	770					775					780				
Arg	Ser	Leu	Asp	Asn	His	Gly	Tyr	Val	Phe	Lys	Pro	Pro	His	Gln	Asp
785					790					795					800
Ala	Leu	Leu	Arg	Pro	Leu	Glu	Leu	Glu	Asn	Asp	Thr	Val	Gly	Ile	Leu
				805					810					815	
Val	Ser	Thr	Ala	Val	Glu	Leu	Ser	Leu	Gly	Arg	Arg	Thr	Leu	Arg	Pro
			820					825					830		
Ala	Val	Val	Gly	Val	Lys	Leu	Asp	Leu	Glu	Ala	Trp	Ala	Glu	Lys	Phe
		835					840					845			
Lys	Val	Leu	Ala	Ser	Asn	Arg	Thr	His	Gln	Asp	Gln	Pro	Gln	Lys	Cys
	850					855					860				
Gly	Pro	Asn	Ser	His	Cys	Glu	Met	Asp	Cys	Glu	Val	Asn	Asn	Glu	Asp
865					870					875					880
Leu	Leu	Cys	Val	Leu	Ile	Asp	Asp	Gly	Gly	Phe	Leu	Val	Leu	Ser	Asn
				885					890					895	
Gln	Asn	His	Gln	Trp	Asp	Gln	Val	Gly	Arg	Phe	Phe	Ser	Glu	Val	Asp
			900					905					910		
Ala	Asn	Leu	Met	Leu	Ala	Leu	Tyr	Asn	Asn	Ser	Phe	Tyr	Thr	Arg	Lys
		915					920					925			
Glu	Ser	Tyr	Asp	Tyr	Gln	Ala	Ala	Cys	Ala	Pro	Gln	Pro	Pro	Gly	Asn
	930					935					940				
Leu	Gly	Ala	Ala	Pro	Arg	Gly	Val	Phe	Val	Pro	Thr	Val	Ala	Asp	Phe
945					950					955					960
Leu	Asn	Leu	Ala	Trp	Trp	Thr	Ser	Ala	Ala	Ala	Trp	Ser	Leu	Phe	Gln
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Gln	Leu	Leu	Tyr	Gly	Leu	Ile	Tyr	His	Ser	Trp	Phe	Gln	Ala	Asp	Pro
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Ala	Glu	Ala	Glu	Gly	Ser	Pro	Glu	Thr	Arg	Glu	Ser	Ser	Cys	Val	Met
		995					1000					1005			
Lys	Gln	Thr	Gln	Tyr	Tyr	Phe	Gly	Ser	Val	Asn	Ala	Ser	Tyr	Asn	Ala
	1010					1015					1020				
Ile	Ile	Asp	Cys	Gly	Asn	Cys	Ser	Arg	Leu	Phe	His	Ala	Gln	Arg	Leu
1025					1030					1035					1040
Thr	Asn	Thr	Asn	Leu	Leu	Phe	Val	Val	Ala	Glu	Lys	Pro	Leu	Cys	Ser
				1045					1050					1055	

1801.app

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Asp Gly Pro Glu Gln Cys Glu Leu Val Gln  
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<213> Homo sapiens

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Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu  
 35 40 45

Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe  
 50 55 60

Pro Gln Gln His Thr Met Gln His Trp Ala Arg Arg Leu Glu Gln Glu  
 65 70 75 80

Val Asp Gly Val Met Arg Ile Phe Gly Gly Val Gln Gln Leu Arg Glu  
 85 90 95

Ile Tyr Lys Asp Asn Arg Asn Leu Phe Glu Val Gln Glu Asn Glu Pro  
 100 105 110

Gln Lys Leu Val Glu Lys Val Ala Gly Asp Ile Glu Ser Leu Leu Asp  
 115 120 125

Arg Lys Val Gln Ala Leu Lys Arg Leu Ala Asp Ala Ala Glu Asn Phe  
 130 135 140

Gln Lys Ala His Arg Trp Gln Asp Asn Ile Lys Glu Glu Asp Ile Val  
 145 150 155 160

Tyr Tyr Asp Ala Lys Ala Asp Ala Glu Leu Asp Asp Pro Glu Ser Glu  
 165 170 175

Asp Val Glu Arg Gly Ser Lys Ala Ser Thr Leu Arg Leu Asp Phe Ile  
 180 185 190

Glu Asp Pro Asn Phe Lys Asn Lys Val Asn Tyr Ser Tyr Ala Ala Val  
 195 200 205

Gln Ile Pro Thr Asp Ile Tyr Lys Gly Ser Thr Val Ile Leu Asn Glu  
 210 215 220

## 1801.app

Leu 225	Asn	Trp	Thr	Glu	Ala 230	Leu	Glu	Asn	Val	Phe 235	Met	Glu	Asn	Arg	Arg 240
Gln	Asp	Pro	Thr	Leu 245	Leu	Trp	Gln	Val	Phe 250	Gly	Ser	Ala	Thr	Gly 255	Val
Thr	Arg	Tyr	Tyr 260	Pro	Ala	Thr	Pro	Trp 265	Arg	Ala	Pro	Lys	Lys 270	Ile	Asp
Leu	Tyr	Asp 275	Val	Arg	Arg	Arg	Pro 280	Trp	Tyr	Ile	Gln	Gly 285	Ala	Ser	Ser
Pro	Lys 290	Asp	Met	Val	Ile	Ile 295	Val	Asp	Val	Ser	Gly 300	Ser	Val	Ser	Gly
Leu 305	Thr	Leu	Lys	Leu	Met 310	Lys	Thr	Ser	Val	Cys 315	Glu	Met	Leu	Asp	Thr 320
Leu	Ser	Asp	Asp	Asp 325	Tyr	Val	Asn	Val	Ala 330	Ser	Phe	Asn	Glu	Lys 335	Ala
Gln	Pro	Val	Ser 340	Cys	Phe	Thr	His	Leu 345	Val	Gln	Ala	Asn	Val 350	Arg	Asn
Lys	Lys	Val 355	Phe	Lys	Glu	Ala	Val 360	Gln	Gly	Met	Val	Ala 365	Lys	Gly	Thr
Thr	Gly 370	Tyr	Lys	Ala	Gly	Phe 375	Glu	Tyr	Ala	Phe	Asp 380	Gln	Leu	Gln	Asn
Ser 385	Asn	Ile	Thr	Arg	Ala 390	Asn	Cys	Asn	Lys	Met 395	Ile	Met	Met	Phe	Thr 400
Asp	Gly	Gly	Glu	Asp 405	Arg	Val	Gln	Asp	Val 410	Phe	Glu	Lys	Tyr	Asn 415	Trp
Pro	Asn	Arg	Thr 420	Val	Arg	Val	Phe	Thr 425	Phe	Ser	Val	Gly	Gln 430	His	Asn
Tyr	Asp 435	Val	Thr	Pro	Leu	Gln	Trp 440	Met	Ala	Cys	Ala	Asn 445	Lys	Gly	Tyr
Tyr 450	Phe	Glu	Ile	Pro	Ser	Ile 455	Gly	Ala	Ile	Arg	Ile 460	Asn	Thr	Gln	Glu
Tyr 465	Leu	Asp	Val	Leu	Gly 470	Arg	Pro	Met	Val	Leu 475	Ala	Gly	Lys	Glu	Ala 480
Lys	Gln	Val	Gln	Trp 485	Thr	Asn	Val	Tyr	Glu 490	Asp	Ala	Leu	Gly	Leu 495	Gly
Leu	Val	Val	Thr 500	Gly	Thr	Leu	Pro	Val 505	Phe	Asn	Leu	Thr	Gln 510	Asp	Gly
Pro	Gly	Glu	Lys	Lys	Asn	Gln	Leu	Ile	Leu	Gly	Val	Met	Gly	Ile	Asp



1801.app															
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His	Pro	Asn	Leu	Lys	Pro	Gln	Thr	Thr	Asn	Phe	Arg	Glu	Pro	Val	Thr
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Ser	Glu	Gly	His	Val	Phe	Ile	Ala	Pro	Arg	Glu	Tyr	Cys	Lys	Asp	Leu
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Asn	Ala	Ser	Asp	Asn	Asn	Thr	Glu	Phe	Leu	Lys	Asn	Phe	Ile	Glu	Leu
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Met	Glu	Lys	Val	Thr	Pro	Asp	Ser	Lys	Gln	Cys	Asn	Asn	Phe	Leu	Leu
705					710					715					720
His	Asn	Leu	Ile	Leu	Asp	Thr	Gly	Ile	Thr	Gln	Gln	Leu	Val	Glu	Arg
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Val	Trp	Arg	Asp	Gln	Asp	Leu	Asn	Thr	Tyr	Ser	Leu	Leu	Ala	Val	Phe
			740					745					750		
Ala	Ala	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Phe	Pro	Asn	Lys	Ala	Ala
		755					760					765			
Glu	Asp	Trp	Thr	Glu	Asn	Pro	Glu	Pro	Phe	Asn	Ala	Ser	Phe	Tyr	Arg
	770					775					780				
Arg	Ser	Leu	Asp	Asn	His	Gly	Tyr	Val	Phe	Lys	Pro	Pro	His	Gln	Asp
785					790					795					800
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 aataatttgc ctgtgaacat cagtctaagt gacgtccaag taccaacgaa catgtacaac  
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 1140  
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 1260  
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 1380  
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## 1801.app

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## 1801.app

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## 1801.app

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## 1801.app

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## 1801.app

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## 1801.app

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1801.app

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Ser	Ser	Cys	Leu	Cys	Glu	Ser	Val	Ala	Pro	Ile									
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                   20                          25                          30  
 Ser Glu Gln Gln Ile Pro Leu Ser Val Val Lys Leu Trp Ala Ser Ala  
           35                          40                          45  
 Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln  
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 Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu

65						70						75						80
Glu	Ile	Asp	Gly	Leu	Gln	Leu	Val	Lys	Lys	Leu	Ala	Lys	Asn	Met	Glu			
				85					90					95				
Glu	Met	Phe	His	Lys	Lys	Ser	Glu	Ala	Val	Arg	Arg	Leu	Val	Glu	Ala			
			100					105					110					
Ala	Glu	Glu	Ala	His	Leu	Lys	His	Glu	Phe	Asp	Ala	Asp	Leu	Gln	Tyr			
		115					120					125						
Glu	Tyr	Phe	Asn	Ala	Val	Leu	Ile	Asn	Glu	Arg	Asp	Lys	Asp	Gly	Asn			
	130					135					140							
Phe	Leu	Glu	Leu	Gly	Lys	Glu	Phe	Ile	Leu	Ala	Pro	Asn	Asp	His	Phe			
145					150					155					160			
Asn	Asn	Leu	Pro	Val	Asn	Ile	Ser	Leu	Ser	Asp	Val	Gln	Val	Pro	Thr			
				165					170					175				
Asn	Met	Tyr	Asn	Lys	Asp	Pro	Ala	Ile	Val	Asn	Gly	Val	Tyr	Trp	Ser			
			180					185					190					
Glu	Ser	Leu	Asn	Lys	Val	Phe	Val	Asp	Asn	Phe	Asp	Arg	Asp	Pro	Ser			
		195					200					205						
Leu	Ile	Trp	Gln	Tyr	Phe	Gly	Ser	Ala	Lys	Gly	Phe	Phe	Arg	Gln	Tyr			
	210					215					220							
Pro	Gly	Ile	Lys	Trp	Glu	Pro	Asp	Glu	Asn	Gly	Val	Ile	Ala	Phe	Asp			
225					230					235					240			
Cys	Arg	Asn	Arg	Lys	Trp	Tyr	Ile	Gln	Ala	Ala	Thr	Ser	Pro	Lys	Asp			
				245					250					255				
Val	Val	Ile	Leu	Val	Asp	Val	Ser	Gly	Ser	Met	Lys	Gly	Leu	Arg	Leu			
			260					265					270					
Thr	Ile	Ala	Lys	Gln	Thr	Val	Ser	Ser	Ile	Leu	Asp	Thr	Leu	Gly	Asp			
		275					280					285						
Asp	Asp	Phe	Phe	Asn	Ile	Ile	Ala	Tyr	Asn	Glu	Glu	Leu	His	Tyr	Val			
	290					295					300							
Glu	Pro	Cys	Leu	Asn	Gly	Thr	Leu	Val	Gln	Ala	Asp	Arg	Thr	Asn	Lys			
305					310					315					320			
Glu	His	Phe	Arg	Glu	His	Leu	Asp	Lys	Leu	Phe	Ala	Lys	Gly	Ile	Gly			
				325					330					335				
Met	Leu	Asp	Ile	Ala	Leu	Asn	Glu	Ala	Phe	Asn	Ile	Leu	Ser	Asp	Phe			
			340					345					350					
Asn	His	Thr	Gly	Gln	Gly	Ser	Ile	Cys	Ser	Gln	Ala	Ile	Met	Leu	Ile			
		355					360					365						

## 1801.app

Thr	Asp	Gly	Ala	Val	Asp	Thr	Tyr	Asp	Thr	Ile	Phe	Ala	Lys	Tyr	Asn
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Trp	Pro	Asp	Arg	Lys	Val	Arg	Ile	Phe	Thr	Tyr	Leu	Ile	Gly	Arg	Glu
385					390					395					400
Ala	Ala	Phe	Ala	Asp	Asn	Leu	Lys	Trp	Met	Ala	Cys	Ala	Asn	Lys	Gly
				405					410					415	
Phe	Phe	Thr	Gln	Ile	Ser	Thr	Leu	Ala	Asp	Val	Gln	Glu	Asn	Val	Met
			420					425					430		
Glu	Tyr	Leu	His	Val	Leu	Ser	Arg	Pro	Lys	Val	Ile	Asp	Gln	Glu	His
		435					440					445			
Asp	Val	Val	Trp	Thr	Glu	Ala	Tyr	Ile	Asp	Ser	Thr	Leu	Thr	Asp	Asp
	450					455					460				
Gln	Gly	Pro	Val	Leu	Met	Thr	Thr	Val	Ala	Met	Pro	Val	Phe	Ser	Lys
465					470					475					480
Gln	Asn	Glu	Thr	Arg	Ser	Lys	Gly	Ile	Leu	Leu	Gly	Val	Val	Gly	Thr
				485					490					495	
Asp	Val	Pro	Val	Lys	Glu	Leu	Leu	Lys	Thr	Ile	Pro	Lys	Tyr	Lys	Leu
			500					505					510		
Gly	Ile	His	Gly	Tyr	Ala	Phe	Ala	Ile	Thr	Asn	Asn	Gly	Tyr	Ile	Leu
		515					520					525			
Thr	His	Pro	Glu	Leu	Arg	Leu	Leu	Tyr	Glu	Glu	Gly	Lys	Lys	Arg	Arg
						535					540				
Lys	Pro	Asn	Tyr	Ser	Ser	Val	Asp	Leu	Ser	Glu	Val	Glu	Trp	Glu	Asp
545					550					555					560
Arg	Asp	Asp	Val	Leu	Arg	Asn	Ala	Met	Val	Asn	Arg	Lys	Thr	Gly	Lys
				565					570					575	
Phe	Ser	Met	Glu	Val	Lys	Lys	Thr	Val	Asp	Lys	Gly	Lys	Arg	Val	Leu
			580					585					590		
Val	Met	Thr	Asn	Asp	Tyr	Tyr	Tyr	Thr	Asp	Ile	Lys	Gly	Thr	Pro	Phe
		595					600					605			
Ser	Leu	Gly	Val	Ala	Leu	Ser	Arg	Gly	His	Gly	Lys	Tyr	Phe	Phe	Arg
	610					615					620				
Gly	Asn	Val	Thr	Ile	Glu	Glu	Gly	Leu	His	Asp	Leu	Glu	His	Pro	Asp
625					630					635					640
Val	Ser	Leu	Ala	Asp	Glu	Trp	Ser	Tyr	Cys	Asn	Thr	Asp	Leu	His	Pro
				645					650					655	
Glu	His	Arg	His	Leu	Ser	Gln	Leu	Glu	Ala	Ile	Lys	Leu	Tyr	Leu	Lys
			660					665					670		

## 1801.app

Gly	Lys	Glu	Pro	Leu	Leu	Gln	Cys	Asp	Lys	Glu	Leu	Ile	Gln	Glu	Val
		675					680					685			
Leu	Phe	Asp	Ala	Val	Val	Ser	Ala	Pro	Ile	Glu	Ala	Tyr	Trp	Thr	Ser
	690					695					700				
Leu	Ala	Leu	Asn	Lys	Ser	Glu	Asn	Ser	Asp	Lys	Gly	Val	Glu	Val	Ala
705					710					715					720
Phe	Leu	Gly	Thr	Arg	Thr	Gly	Leu	Ser	Arg	Ile	Asn	Leu	Phe	Val	Gly
				725					730					735	
Ala	Glu	Gln	Leu	Thr	Asn	Gln	Asp	Phe	Leu	Lys	Ala	Gly	Asp	Lys	Glu
			740					745					750		
Asn	Ile	Phe	Asn	Ala	Asp	His	Phe	Pro	Leu	Trp	Tyr	Arg	Arg	Ala	Ala
		755					760					765			
Glu	Gln	Ile	Pro	Gly	Ser	Phe	Val	Tyr	Ser	Ile	Pro	Phe	Ser	Thr	Gly
	770					775					780				
Pro	Val	Asn	Lys	Ser	Asn	Val	Val	Thr	Ala	Ser	Thr	Ser	Ile	Gln	Leu
785					790					795					800
Leu	Asp	Glu	Arg	Lys	Ser	Pro	Val	Val	Ala	Ala	Val	Gly	Ile	Gln	Met
				805					810					815	
Lys	Leu	Glu	Phe	Phe	Gln	Arg	Lys	Phe	Trp	Thr	Ala	Ser	Arg	Gln	Cys
			820					825					830		
Ala	Ser	Leu	Asp	Gly	Lys	Cys	Ser	Ile	Ser	Cys	Asp	Asp	Glu	Thr	Val
		835					840					845			
Asn	Cys	Tyr	Leu	Ile	Asp	Asn	Asn	Gly	Phe	Ile	Leu	Val	Ser	Glu	Asp
	850					855					860				
Tyr	Thr	Gln	Thr	Gly	Asp	Phe	Phe	Gly	Glu	Ile	Glu	Gly	Ala	Val	Met
865					870					875					880
Asn	Lys	Leu	Leu	Thr	Met	Gly	Ser	Phe	Lys	Arg	Ile	Thr	Leu	Tyr	Asp
				885					890					895	
Tyr	Gln	Ala	Met	Cys	Arg	Ala	Asn	Lys	Glu	Ser	Ser	Asp	Gly	Ala	His
			900					905					910		
Gly	Leu	Leu	Asp	Pro	Tyr	Asn	Ala	Phe	Leu	Ser	Ala	Val	Lys	Trp	Ile
		915					920					925			
Met	Thr	Glu	Leu	Val	Leu	Phe	Leu	Val	Glu	Phe	Asn	Leu	Cys	Ser	Trp
	930					935					940				
Trp	His	Ser	Asp	Met	Thr	Ala	Lys	Ala	Gln	Lys	Leu	Lys	Gln	Thr	Leu
945					950					955					960
Glu	Pro	Cys	Asp	Thr	Glu	Tyr	Pro	Ala	Phe	Val	Ser	Glu	Arg	Thr	Ile

Lys Glu Thr Thr Gly Asn Ile Ala Cys Glu Asp Cys Ser Lys Ser Phe  
980 985 990  
Val Ile Gln Gln Ile Pro Ser Ser Asn Leu Phe Met Val Val Val Asp  
995 1000 1005  
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1010 1015 1020  
Glu Ile Arg Tyr Asn Glu Ser Leu Lys Cys Glu Arg Leu Lys  
1025 1030 1035

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35 40 45  
Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln  
50 55 60  
Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu  
65 70 75 80  
Glu Ile Asp Gly Leu Gln Leu Val Lys Lys Leu Ala Lys Asn Met Glu  
85 90 95  
Glu Met Phe His Lys Lys Ser Glu Ala Val Arg Arg Leu Val Glu Ala  
100 105 110  
Ala Glu Glu Ala His Leu Lys His Glu Phe Asp Ala Asp Leu Gln Tyr  
115 120 125  
Glu Tyr Phe Asn Ala Val Leu Ile Asn Glu Arg Asp Lys Asp Gly Asn  
130 135 140  
Phe Leu Glu Leu Gly Lys Glu Phe Ile Leu Ala Pro Asn Asp His Phe  
145 150 155 160  
Asn Asn Leu Pro Val Asn Ile Ser Leu Ser Asp Val Gln Val Pro Thr  
165 170 175  
Asn Met Tyr Asn Lys Asp Pro Ala Ile Val Asn Gly Val Tyr Trp Ser



1801.app															
180						185					190				
Glu	Ser	Leu	Asn	Lys	Val	Phe	Val	Asp	Asn	Phe	Asp	Arg	Asp	Pro	Ser
		195					200					205			
Leu	Ile	Trp	Gln	Tyr	Phe	Gly	Ser	Ala	Lys	Gly	Phe	Phe	Arg	Gln	Tyr
	210					215					220				
Pro	Gly	Ile	Lys	Trp	Glu	Pro	Asp	Glu	Asn	Gly	Val	Ile	Ala	Phe	Asp
225					230					235					240
Cys	Arg	Asn	Arg	Lys	Trp	Tyr	Ile	Gln	Ala	Ala	Thr	Ser	Pro	Lys	Asp
				245					250					255	
Val	Val	Ile	Leu	Val	Asp	Val	Ser	Gly	Ser	Met	Lys	Gly	Leu	Arg	Leu
			260					265					270		
Thr	Ile	Ala	Lys	Gln	Thr	Val	Ser	Ser	Ile	Leu	Asp	Thr	Leu	Gly	Asp
		275					280					285			
Asp	Asp	Phe	Phe	Asn	Ile	Ile	Ala	Tyr	Asn	Glu	Glu	Leu	His	Tyr	Val
	290					295					300				
Glu	Pro	Cys	Leu	Asn	Gly	Thr	Leu	Val	Gln	Ala	Asp	Arg	Thr	Asn	Lys
305					310					315					320
Glu	His	Phe	Arg	Glu	His	Leu	Asp	Lys	Leu	Phe	Ala	Lys	Gly	Ile	Gly
				325					330					335	
Met	Leu	Asp	Ile	Ala	Leu	Asn	Glu	Ala	Phe	Asn	Ile	Leu	Ser	Asp	Phe
			340					345					350		
Asn	His	Thr	Gly	Gln	Gly	Ser	Ile	Cys	Ser	Gln	Ala	Ile	Met	Leu	Ile
		355					360					365			
Thr	Asp	Gly	Ala	Val	Asp	Thr	Tyr	Asp	Thr	Ile	Phe	Ala	Lys	Tyr	Asn
	370					375					380				
Trp	Pro	Asp	Arg	Lys	Val	Arg	Ile	Phe	Thr	Tyr	Leu	Ile	Gly	Arg	Glu
385					390					395					400
Ala	Ala	Phe	Ala	Asp	Asn	Leu	Lys	Trp	Met	Ala	Cys	Ala	Asn	Lys	Gly
				405					410					415	
Phe	Phe	Thr	Gln	Ile	Ser	Thr	Leu	Ala	Asp	Val	Gln	Glu	Asn	Val	Met
			420					425					430		
Glu	Tyr	Leu	His	Val	Leu	Ser	Arg	Pro	Lys	Val	Ile	Asp	Gln	Glu	His
		435					440					445			
Asp	Val	Val	Trp	Thr	Glu	Ala	Tyr	Ile	Asp	Ser	Thr	Leu	Thr	Asp	Asp
	450					455					460				
Gln	Gly	Pro	Val	Leu	Met	Thr	Thr	Val	Ala	Met	Pro	Val	Phe	Ser	Lys
465					470					475					480

## 1801.app

Gln	Asn	Glu	Thr	Arg	Ser	Lys	Gly	Ile	Leu	Leu	Gly	Val	Val	Gly	Thr	485	490	495
Asp	Val	Pro	Val	Lys	Glu	Leu	Leu	Lys	Thr	Ile	Pro	Lys	Tyr	Lys	Leu	500	505	510
Gly	Ile	His	Gly	Tyr	Ala	Phe	Ala	Ile	Thr	Asn	Asn	Gly	Tyr	Ile	Leu	515	520	525
Thr	His	Pro	Glu	Leu	Arg	Leu	Leu	Tyr	Glu	Glu	Gly	Lys	Lys	Arg	Arg	530	535	540
Lys	Pro	Asn	Tyr	Ser	Ser	Val	Asp	Leu	Ser	Glu	Val	Glu	Trp	Glu	Asp	545	550	555
Arg	Asp	Asp	Val	Leu	Arg	Asn	Ala	Met	Val	Asn	Arg	Lys	Thr	Gly	Lys	565	570	575
Phe	Ser	Met	Glu	Val	Lys	Lys	Thr	Val	Asp	Lys	Gly	Lys	Arg	Val	Leu	580	585	590
Val	Met	Thr	Asn	Asp	Tyr	Tyr	Tyr	Thr	Asp	Ile	Lys	Gly	Thr	Pro	Phe	595	600	605
Ser	Leu	Gly	Val	Ala	Leu	Ser	Arg	Gly	His	Gly	Lys	Tyr	Phe	Phe	Arg	610	615	620
Gly	Asn	Val	Thr	Ile	Glu	Glu	Gly	Leu	His	Asp	Leu	Glu	His	Pro	Asp	625	630	635
Val	Ser	Leu	Ala	Asp	Glu	Trp	Ser	Tyr	Cys	Asn	Thr	Asp	Leu	His	Pro	645	650	655
Glu	His	Arg	His	Leu	Ser	Gln	Leu	Glu	Ala	Ile	Lys	Leu	Tyr	Leu	Lys	660	665	670
Gly	Lys	Glu	Pro	Leu	Leu	Gln	Cys	Asp	Lys	Glu	Leu	Ile	Gln	Glu	Val	675	680	685
Leu	Phe	Asp	Ala	Val	Val	Ser	Ala	Pro	Ile	Glu	Ala	Tyr	Trp	Thr	Ser	690	695	700
Leu	Ala	Leu	Asn	Lys	Ser	Glu	Asn	Ser	Asp	Lys	Gly	Val	Glu	Val	Ala	705	710	715
Phe	Leu	Gly	Thr	Arg	Thr	Gly	Leu	Ser	Arg	Ile	Asn	Leu	Phe	Val	Gly	725	730	735
Ala	Glu	Gln	Leu	Thr	Asn	Gln	Asp	Phe	Leu	Lys	Ala	Gly	Asp	Lys	Glu	740	745	750
Asn	Ile	Phe	Asn	Ala	Asp	His	Phe	Pro	Leu	Trp	Tyr	Arg	Arg	Ala	Ala	755	760	765
Glu	Gln	Ile	Pro	Gly	Ser	Phe	Val	Tyr	Ser	Ile	Pro	Phe	Ser	Thr	Gly	770	775	780

## 1801.app

Pro	Val	Asn	Lys	Ser	Asn	Val	Val	Thr	Ala	Ser	Thr	Ser	Ile	Gln	Leu	785	790	795	800
Leu	Asp	Glu	Arg	Lys	Ser	Pro	Val	Val	Ala	Ala	Val	Gly	Ile	Gln	Met	805	810		815
Lys	Leu	Glu	Phe	Phe	Gln	Arg	Lys	Phe	Trp	Thr	Ala	Ser	Arg	Gln	Cys	820	825		830
Ala	Ser	Leu	Asp	Gly	Lys	Cys	Ser	Ile	Ser	Cys	Asp	Asp	Glu	Thr	Val	835	840		845
Asn	Cys	Tyr	Leu	Ile	Asp	Asn	Asn	Gly	Phe	Ile	Leu	Val	Ser	Glu	Asp	850	855		860
Tyr	Thr	Gln	Thr	Gly	Asp	Phe	Phe	Gly	Glu	Ile	Glu	Gly	Ala	Val	Met	865	870		875
Asn	Lys	Leu	Leu	Thr	Met	Gly	Ser	Phe	Lys	Arg	Ile	Thr	Leu	Tyr	Asp	885	890		895
Tyr	Gln	Ala	Met	Cys	Arg	Ala	Asn	Lys	Glu	Ser	Ser	Asp	Gly	Ala	His	900	905		910
Gly	Leu	Leu	Asp	Pro	Tyr	Asn	Ala	Phe	Leu	Ser	Ala	Val	Lys	Trp	Ile	915	920		925
Met	Thr	Glu	Leu	Val	Leu	Phe	Leu	Val	Glu	Phe	Asn	Leu	Cys	Ser	Trp	930	935		940
Trp	His	Ser	Asp	Met	Thr	Ala	Lys	Ala	Gln	Lys	Leu	Lys	Gln	Thr	Leu	945	950		955
Glu	Pro	Cys	Asp	Thr	Glu	Tyr	Pro	Ala	Phe	Val	Ser	Glu	Arg	Thr	Ile	965	970		975
Lys	Glu	Thr	Thr	Gly	Asn	Ile	Ala	Cys	Glu	Asp	Cys	Ser	Lys	Ser	Phe	980	985		990
Val	Ile	Gln	Gln	Ile	Pro	Ser	Ser	Asn	Leu	Phe	Met	Val	Val	Val	Asp	995	1000		1005
Ser	Ser	Cys	Leu	Cys	Glu	Ser	Val	Ala	Pro	Ile	Thr	Met	Ala	Pro	Ile	1010	1015		1020
Glu	Ile	Arg	Tyr	Asn	Glu	Ser	Leu	Lys	Cys	Glu	Arg	Leu	Lys	Ala	Gln	1025	1030		1035
Lys	Ile	Arg	Arg	Arg	Pro	Glu	Ser	Cys	His	Gly	Phe	His	Pro	Glu	Glu	1045	1050		1055
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 120  
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 180  
 gaaagtgcgg gtgaacccat ggtggtgacg gcaagcacag ctgtggcggt gaccgtggac  
 240  
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 360  
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 420  
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 480  
 ctacgcatgg ggggtgttcag ccaagtgact atgtatgact atcaggccat gtgcaaacc  
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 660  
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 720  
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 780  
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 ttcccaccag tg  
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 120  
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 180  
 gaaagtgcgg gtgaacccat ggtggtgacg gcaagcacag ctgtggcggt gaccgtggac  
 240  
 aagaggacag ccattgctgc agccgcgggc gtccaaatga agctggaatt cctccagcgc

1801.app

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360  
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420  
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660  
tcctggtacg acagaggggc cgaggccaaa agtgtcttcc atcactccca caaacacaag  
720  
aagcaggacc cgctgcagcc ctgcgacacg gagtaccccg tgttcgtgta ccagccggcc  
780  
atccgggagg ccaacgggat cgtggagtgc gggccctgcc agaaggatt tgtggtgcag  
840  
cagattccca acagtaacct cctcctcctg gtgacagacc ccacctgtga ctgcagcatc  
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969

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120  
caggcctcag agcatcctgc tggcagcttc gtcttcaacc tccgctgggc agaaggacca  
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gaaagtgcgg gtgaacccat ggtggtgacg gcaagcacag ctgtggcggg gaccgtggac  
240  
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## 1801.app

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 <213> Homo sapiens

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 165 170 175  
 Met Cys Lys Pro Ser Ser His His His Ser Ala Ala Gln Pro Leu Val  
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1801.app

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Arg	Gly	Ala	Glu	Ala	Lys	Ser	Val	Phe	His	His	Ser	His	Lys	His	Lys
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Lys	Gln	Asp	Pro	Leu	Gln	Pro	Cys	Asp	Thr	Glu	Tyr	Pro	Val	Phe	Val
				245					250					255	
Tyr	Gln	Pro	Ala	Ile	Arg	Glu	Ala	Asn	Gly	Ile	Val	Glu	Cys	Gly	Pro
			260					265					270		
Cys	Gln	Lys	Val	Phe	Val	Val	Gln	Gln	Ile	Pro	Asn	Ser	Asn	Leu	Leu
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 <213> Homo sapiens

<400> 17

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Asp	Arg	Phe	Pro	Leu	Trp	Tyr	Arg	Gln	Ala	Ser	Glu	His	Pro	Ala	Gly
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Ser	Phe	Val	Phe	Asn	Leu	Arg	Trp	Ala	Glu	Gly	Pro	Glu	Ser	Ala	Gly
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Lys	Arg	Thr	Ala	Ile	Ala	Ala	Ala	Ala	Gly	Val	Gln	Met	Lys	Leu	Glu
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## 1801.app

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 Met Cys Lys Pro Ser Ser His His His Ser Ala Ala Gln Pro Leu Val  
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 225 230 235 240  
 Lys Gln Asp Pro Leu Gln Pro Cys Asp Thr Glu Tyr Pro Val Phe Val  
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 Tyr Gln Pro Ala Ile Arg Glu Ala Asn Gly Ile Val Glu Cys Gly Pro  
 260 265 270  
 Cys Gln Lys Val Phe Val Val Gln Gln Ile Pro Asn Ser Asn Leu Leu  
 275 280 285  
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## 1801.app

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Phe	Leu	Gln	Arg	Lys	Phe	Trp	Ala	Ala	Thr	Arg	Gln	Cys	Ser	Thr	Val
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Leu	Ser	Met	Gly	Val	Phe	Ser	Gln	Val	Thr	Met	Tyr	Asp	Tyr	Gln	Ala
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Met	Cys	Lys	Pro	Ser	Ser	His	His	His	Ser	Ala	Ala	Gln	Pro	Leu	Val
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Tyr	Gln	Pro	Ala	Ile	Arg	Glu	Ala	Asn	Gly	Ile	Val	Glu	Cys	Gly	Pro
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Cys	Gln	Lys	Val	Phe	Val	Val	Gln	Gln	Ile	Pro	Asn	Ser	Asn	Leu	Leu
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## 1801.app

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&lt;211&gt; 1145

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

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Pro	Leu	Leu	Pro	Leu	Leu	Ala	Ala	Pro	Gly	Ala	Ser	Ala	Tyr	Ser	Phe
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Pro	Gln	Gln	His	Thr	Met	Gln	His	Trp	Ala	Arg	Arg	Leu	Glu	Gln	Glu
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Val	Asp	Gly	Val	Met	Arg	Ile	Phe	Gly	Gly	Val	Gln	Gln	Leu	Arg	Glu
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1801.app															
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Ser	Asn	Ile	Thr	Arg	Ala	Asn	Cys	Asn	Lys	Met	Ile	Met	Met	Phe	Thr
385					390					395					400
Asp	Gly	Gly	Glu	Asp	Arg	Val	Gln	Asp	Val	Phe	Glu	Lys	Tyr	Asn	Trp
				405					410					415	

## 1801.app

Pro	Asn	Arg	Thr	Val	Arg	Val	Phe	Thr	Phe	Ser	Val	Gly	Gln	His	Asn		
			420					425					430				
Tyr	Asp	Val	Thr	Pro	Leu	Gln	Trp	Met	Ala	Cys	Ala	Asn	Lys	Gly	Tyr		
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Tyr	Phe	Glu	Ile	Pro	Ser	Ile	Gly	Ala	Ile	Arg	Ile	Asn	Thr	Gln	Glu		
	450					455					460						
Tyr	Leu	Asp	Val	Leu	Gly	Arg	Pro	Met	Val	Leu	Ala	Gly	Lys	Glu	Ala		
465					470					475					480		
Lys	Gln	Val	Gln	Trp	Thr	Asn	Val	Tyr	Glu	Asp	Ala	Leu	Gly	Leu	Gly		
				485					490					495			
Leu	Val	Val	Thr	Gly	Thr	Leu	Pro	Val	Phe	Asn	Leu	Thr	Gln	Asp	Gly		
			500					505					510				
Pro	Gly	Glu	Lys	Lys	Asn	Gln	Leu	Ile	Leu	Gly	Val	Met	Gly	Ile	Asp		
		515					520					525					
Val	Ala	Leu	Asn	Asp	Ile	Lys	Arg	Leu	Thr	Pro	Asn	Tyr	Thr	Leu	Gly		
	530					535					540						
Ala	Asn	Gly	Tyr	Val	Phe	Ala	Ile	Asp	Leu	Asn	Gly	Tyr	Val	Leu	Leu		
545					550					555					560		
His	Pro	Asn	Leu	Lys	Pro	Gln	Thr	Thr	Asn	Phe	Arg	Glu	Pro	Val	Thr		
				565					570					575			
Leu	Asp	Phe	Leu	Asp	Ala	Glu	Leu	Glu	Asp	Glu	Asn	Lys	Glu	Glu	Ile		
			580					585					590				
Arg	Arg	Ser	Met	Ile	Asp	Gly	Asn	Lys	Gly	His	Lys	Gln	Ile	Arg	Thr		
		595					600					605					
Leu	Val	Lys	Ser	Leu	Asp	Glu	Arg	Tyr	Ile	Asp	Glu	Val	Thr	Arg	Asn		
	610					615					620						
Tyr	Thr	Trp	Val	Pro	Ile	Arg	Ser	Thr	Asn	Tyr	Ser	Leu	Gly	Leu	Val		
625				630						635					640		
Leu	Pro	Pro	Tyr	Ser	Thr	Phe	Tyr	Leu	Gln	Ala	Asn	Leu	Ser	Asp	Gln		
				645					650					655			
Ile	Leu	Gln	Val	Lys	Tyr	Phe	Glu	Phe	Leu	Leu	Pro	Ser	Ser	Phe	Glu		
			660					665					670				
Ser	Glu	Gly	His	Val	Phe	Ile	Ala	Pro	Arg	Glu	Tyr	Cys	Lys	Asp	Leu		
		675					680					685					
Asn	Ala	Ser	Asp	Asn	Asn	Thr	Glu	Phe	Leu	Lys	Asn	Phe	Ile	Glu	Leu		
	690					695					700						
Met	Glu	Lys	Val	Thr	Pro	Asp	Ser	Lys	Gln	Cys	Asn	Asn	Phe	Leu	Leu		
705					710					715					720		

## 1801.app

His	Asn	Leu	Ile	Leu	Asp	Thr	Gly	Ile	Thr	Gln	Gln	Leu	Val	Glu	Arg	
				725					730					735		
Val	Trp	Arg	Asp	Gln	Asp	Leu	Asn	Thr	Tyr	Ser	Leu	Leu	Ala	Val	Phe	
			740					745					750			
Ala	Ala	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Phe	Pro	Asn	Lys	Ala	Ala	
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Glu	Asp	Trp	Thr	Glu	Asn	Pro	Glu	Pro	Phe	Asn	Ala	Ser	Phe	Tyr	Arg	
	770					775					780					
Arg	Ser	Leu	Asp	Asn	His	Gly	Tyr	Val	Phe	Lys	Pro	Pro	His	Gln	Asp	
785					790					795					800	
Ala	Leu	Leu	Arg	Pro	Leu	Glu	Leu	Glu	Asn	Asp	Thr	Val	Gly	Ile	Leu	
				805					810					815		
Val	Ser	Thr	Ala	Val	Glu	Leu	Ser	Leu	Gly	Arg	Arg	Thr	Leu	Arg	Pro	
			820					825					830			
Ala	Val	Val	Gly	Val	Lys	Leu	Asp	Leu	Glu	Ala	Trp	Ala	Glu	Lys	Phe	
		835					840					845				
Lys	Val	Leu	Ala	Ser	Asn	Arg	Thr	His	Gln	Asp	Gln	Pro	Gln	Lys	Cys	
	850					855					860					
Gly	Pro	Asn	Ser	His	Cys	Glu	Met	Asp	Cys	Glu	Val	Asn	Asn	Glu	Asp	
865					870					875					880	
Leu	Leu	Cys	Val	Leu	Ile	Asp	Asp	Gly	Gly	Phe	Leu	Val	Leu	Ser	Asn	
				885					890					895		
Gln	Asn	His	Gln	Trp	Asp	Gln	Val	Gly	Arg	Phe	Phe	Ser	Glu	Val	Asp	
			900					905					910			
Ala	Asn	Leu	Met	Leu	Ala	Leu	Tyr	Asn	Asn	Ser	Phe	Tyr	Thr	Arg	Lys	
		915					920					925				
Glu	Ser	Tyr	Asp	Tyr	Gln	Ala	Ala	Cys	Ala	Pro	Gln	Pro	Pro	Gly	Asn	
	930					935					940					
Leu	Gly	Ala	Ala	Pro	Arg	Gly	Val	Phe	Val	Pro	Thr	Val	Ala	Asp	Phe	
945					950					955					960	
Leu	Asn	Leu	Ala	Trp	Trp	Thr	Ser	Ala	Ala	Ala	Trp	Ser	Leu	Phe	Gln	
				965					970					975		
Gln	Leu	Leu	Tyr	Gly	Leu	Ile	Tyr	His	Ser	Trp	Phe	Gln	Ala	Asp	Pro	
			980					985					990			
Ala	Glu	Ala	Glu	Gly	Ser	Pro	Glu	Thr	Arg	Glu	Ser	Ser	Cys	Val	Met	
		995					1000					1005				
Lys	Gln	Thr	Gln	Tyr	Tyr	Phe	Gly	Ser	Val	Asn	Ala	Ser	Tyr	Asn	Ala	



## 1020

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1140 1145

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<211> 3770
<212> DNA
<213> Homo sapiens
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120
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240
cggagcagca gataccgctc tccgtggtga agctctgggc ctcggtttt ggtggggaga
300
taaaatccat tgctgctaag tactccggtt cccagcttct gcaaaagaaa tacaagagt
360
atgagaaaga cgttgccata gaagaaattg atggcctcca actggtaaag aagctggcaa
420
agaacatgga agagatgttt cacaagaagt ctgaggccgt caggcgtctg gtggaggctg
480
cagaagaagc acacctgaaa catgaatttg atgcagactt acagtatgaa tacttcaatg
540
ctgtgctgat aaatgaaagg gacaaagacg ggaatttttt ggagctggga aaggaattca
600
tcttagcccc aaatgaccat ttaataatt tgccctgtgaa catcagtcta agtgacgtcc
660
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## 1801.app

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720  
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780  
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840  
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900  
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1020  
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1260  
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2340

## 1801.app

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 2640  
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 3600  
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<210> 22  
 <211> 1085  
 <212> PRT  
 <213> Homo sapiens

<400> 22

## 1801.app

Met	Ala	Gly	Pro	Gly	Ser	Pro	Arg	Arg	Ala	Ser	Arg	Gly	Ala	Ser	Ala
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Leu	Leu	Ala	Ala	Ala	Leu	Leu	Tyr	Ala	Ala	Leu	Gly	Asp	Val	Val	Arg
			20					25					30		
Ser	Glu	Gln	Gln	Ile	Pro	Leu	Ser	Val	Val	Lys	Leu	Trp	Ala	Ser	Ala
		35					40					45			
Phe	Gly	Gly	Glu	Ile	Lys	Ser	Ile	Ala	Ala	Lys	Tyr	Ser	Gly	Ser	Gln
	50					55					60				
Leu	Leu	Gln	Lys	Lys	Tyr	Lys	Glu	Tyr	Glu	Lys	Asp	Val	Ala	Ile	Glu
65					70					75					80
Glu	Ile	Asp	Gly	Leu	Gln	Leu	Val	Lys	Lys	Leu	Ala	Lys	Asn	Met	Glu
				85					90					95	
Glu	Met	Phe	His	Lys	Lys	Ser	Glu	Ala	Val	Arg	Arg	Leu	Val	Glu	Ala
			100					105					110		
Ala	Glu	Glu	Ala	His	Leu	Lys	His	Glu	Phe	Asp	Ala	Asp	Leu	Gln	Tyr
		115					120					125			
Glu	Tyr	Phe	Asn	Ala	Val	Leu	Ile	Asn	Glu	Arg	Asp	Lys	Asp	Gly	Asn
	130					135					140				
Phe	Leu	Glu	Leu	Gly	Lys	Glu	Phe	Ile	Leu	Ala	Pro	Asn	Asp	His	Phe
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Asn	Asn	Leu	Pro	Val	Asn	Ile	Ser	Leu	Ser	Asp	Val	Gln	Val	Pro	Thr
				165					170					175	
Asn	Met	Tyr	Asn	Lys	Asp	Pro	Ala	Ile	Val	Asn	Gly	Val	Tyr	Trp	Ser
			180					185					190		
Glu	Ser	Leu	Asn	Lys	Val	Phe	Val	Asp	Asn	Phe	Asp	Arg	Asp	Pro	Ser
		195					200					205			
Leu	Ile	Trp	Gln	Tyr	Phe	Gly	Ser	Ala	Lys	Gly	Phe	Phe	Arg	Gln	Tyr
	210					215					220				
Pro	Gly	Ile	Lys	Trp	Glu	Pro	Asp	Glu	Asn	Gly	Val	Ile	Ala	Phe	Asp
225					230					235					240
Cys	Arg	Asn	Arg	Lys	Trp	Tyr	Ile	Gln	Ala	Ala	Thr	Ser	Pro	Lys	Asp
				245					250					255	
Val	Val	Ile	Leu	Val	Asp	Val	Ser	Gly	Ser	Met	Lys	Gly	Leu	Arg	Leu
			260					265					270		
Thr	Ile	Ala	Lys	Gln	Thr	Val	Ser	Ser	Ile	Leu	Asp	Thr	Leu	Gly	Asp
		275					280					285			
Asp	Asp	Phe	Phe	Asn	Ile	Ile	Ala	Tyr	Asn	Glu	Glu	Leu	His	Tyr	Val
	290					295					300				

## 1801.app

Glu 305	Pro	Cys	Leu	Asn	Gly 310	Thr	Leu	Val	Gln	Ala 315	Asp	Arg	Thr	Asn	Lys 320
Glu	His	Phe	Arg	Glu 325	His	Leu	Asp	Lys	Leu 330	Phe	Ala	Lys	Gly	Ile 335	Gly
Met	Leu	Asp	Ile 340	Ala	Leu	Asn	Glu	Ala 345	Phe	Asn	Ile	Leu	Ser 350	Asp	Phe
Asn	His	Thr 355	Gly	Gln	Gly	Ser	Ile 360	Cys	Ser	Gln	Ala	Ile 365	Met	Leu	Ile
Thr 370	Asp	Gly	Ala	Val	Asp	Thr 375	Tyr	Asp	Thr	Ile	Phe 380	Ala	Lys	Tyr	Asn
Trp 385	Pro	Asp	Arg	Lys	Val 390	Arg	Ile	Phe	Thr	Tyr 395	Leu	Ile	Gly	Arg	Glu 400
Ala	Ala	Phe	Ala	Asp 405	Asn	Leu	Lys	Trp	Met 410	Ala	Cys	Ala	Asn	Lys 415	Gly
Phe	Phe	Thr	Gln 420	Ile	Ser	Thr	Leu	Ala 425	Asp	Val	Gln	Glu	Asn 430	Val	Met
Glu	Tyr	Leu 435	His	Val	Leu	Ser	Arg 440	Pro	Lys	Val	Ile	Asp 445	Gln	Glu	His
Asp	Val	Val	Trp	Thr	Glu	Ala 455	Tyr	Ile	Asp	Ser	Thr 460	Leu	Thr	Asp	Asp
Gln 465	Gly	Pro	Val	Leu	Met 470	Thr	Thr	Val	Ala	Met 475	Pro	Val	Phe	Ser	Lys 480
Gln	Asn	Glu	Thr	Arg 485	Ser	Lys	Gly	Ile	Leu 490	Leu	Gly	Val	Val	Gly 495	Thr
Asp	Val	Pro	Val 500	Lys	Glu	Leu	Leu	Lys 505	Thr	Ile	Pro	Lys	Tyr 510	Lys	Leu
Gly	Ile	His 515	Gly	Tyr	Ala	Phe	Ala 520	Ile	Thr	Asn	Asn	Gly 525	Tyr	Ile	Leu
Thr 530	His	Pro	Glu	Leu	Arg	Leu 535	Leu	Tyr	Glu	Glu	Gly 540	Lys	Lys	Arg	Arg
Lys 545	Pro	Asn	Tyr	Ser	Ser 550	Val	Asp	Leu	Ser	Glu 555	Val	Glu	Trp	Glu	Asp 560
Arg	Asp	Asp	Val	Leu 565	Arg	Asn	Ala	Met	Val 570	Asn	Arg	Lys	Thr	Gly 575	Lys
Phe	Ser	Met	Glu 580	Val	Lys	Lys	Thr	Val 585	Asp	Lys	Gly	Lys	Arg 590	Val	Leu
Val	Met	Thr	Asn	Asp	Tyr	Tyr	Tyr	Thr	Asp	Ile	Lys	Gly	Thr	Pro	Phe

1801.app

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Ser 610	Leu Gly Val Ala Leu	Ser 615	Arg Gly His Gly Lys 620	Tyr Phe Phe Arg
Gly 625	Asn Val Thr Ile Glu 630	Glu Gly Leu His Asp 635	Leu Glu His Pro Asp 640	
Val Ser Leu Ala Asp 645	Glu Trp Ser Tyr Cys 650	Asn Thr Asp Leu His Pro 655		
Glu His Arg His Leu Ser Gln Leu Glu Ala Ile Lys Leu Tyr Leu Lys 660				
Gly Lys Glu Pro Leu Leu Gln Cys Asp Lys Glu Leu Ile Gln Glu Val 675				
Leu Phe Asp Ala Val Val Ser Ala Pro Ile Glu Ala Tyr Trp Thr Ser 690				
Leu Ala Leu Asn Lys Ser Glu Asn Ser Asp Lys Gly Val Glu Val Ala 705				
Phe Leu Gly Thr Arg Thr Gly Leu Ser Arg Ile Asn Leu Phe Val Gly 725				
Ala Glu Gln Leu Thr Asn Gln Asp Phe Leu Lys Ala Gly Asp Lys Glu 740				
Asn Ile Phe Asn Ala Asp His Phe Pro Leu Trp Tyr Arg Arg Ala Ala 755				
Glu Gln Ile Pro Gly Ser Phe Val Tyr Ser Ile Pro Phe Ser Thr Gly 770				
Pro Val Asn Lys Ser Asn Val Val Thr Ala Ser Thr Ser Ile Gln Leu 785				
Leu Asp Glu Arg Lys Ser Pro Val Val Ala Ala Val Gly Ile Gln Met 805				
Lys Leu Glu Phe Phe Gln Arg Lys Phe Trp Thr Ala Ser Arg Gln Cys 820				
Ala Ser Leu Asp Gly Lys Cys Ser Ile Ser Cys Asp Asp Glu Thr Val 835				
Asn Cys Tyr Leu Ile Asp Asn Asn Gly Phe Ile Leu Val Ser Glu Asp 850				
Tyr Thr Gln Thr Gly Asp Phe Phe Gly Glu Ile Glu Gly Ala Val Met 865				
Asn Lys Leu Leu Thr Met Gly Ser Phe Lys Arg Ile Thr Leu Tyr Asp 885				

## 1801.app

Tyr Gln Ala Met Cys Arg Ala Asn Lys Glu Ser Ser Asp Gly Ala His  
                   900                                  905                  910  
 Gly Leu Leu Asp Pro Tyr Asn Ala Phe Leu Ser Ala Val Lys Trp Ile  
                   915                                  920                  925  
 Met Thr Glu Leu Val Leu Phe Leu Val Glu Phe Asn Leu Cys Ser Trp  
                   930                                  935                  940  
 Trp His Ser Asp Met Thr Ala Lys Ala Gln Lys Leu Lys Gln Thr Leu  
   945                                  950                  955                  960  
 Glu Pro Cys Asp Thr Glu Tyr Pro Ala Phe Val Ser Glu Arg Thr Ile  
                                   965                  970                  975  
 Lys Glu Thr Thr Gly Asn Ile Ala Cys Glu Asp Cys Ser Lys Ser Phe  
                                   980                  985                  990  
 Val Ile Gln Gln Ile Pro Ser Ser Asn Leu Phe Met Val Val Val Asp  
                   995                                  1000                  1005  
 Ser Ser Cys Leu Cys Glu Ser Val Ala Pro Ile Thr Met Ala Pro Ile  
   1010                                  1015                  1020  
 Glu Ile Arg Tyr Asn Glu Ser Leu Lys Cys Glu Arg Leu Lys Ala Gln  
   1025                                  1030                  1035                  1040  
 Lys Ile Arg Arg Arg Pro Glu Ser Cys His Gly Phe His Pro Glu Glu  
                                   1045                  1050                  1055  
 Asn Ala Arg Glu Cys Gly Gly Ala Pro Ser Leu Gln Ala Gln Thr Val  
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 Leu Leu Leu Leu Pro Leu Leu Leu Met Leu Phe Ser Arg  
                   1075                                  1080                  1085

<210> 23  
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 <212> PRT  
 <213> Homo sapiens

<400> 23

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 Thr Arg Arg Pro Thr Ser Gly Pro Pro Arg Pro Leu Trp Leu Leu Leu  
                   35                                  40                  45  
 Pro Leu Leu Pro Leu Leu Ala Ala Pro Gly Ala Ser Ala Tyr Ser Phe  
   50                                  55                  60

## 1801.app

Pro 65	Gln	Gln	His	Thr	Met 70	Gln	His	Trp	Ala	Arg 75	Arg	Leu	Glu	Gln	Glu 80
Val	Asp	Gly	Val	Met 85	Arg	Ile	Phe	Gly	Gly 90	Val	Gln	Gln	Leu	Arg 95	Glu
Ile	Tyr	Lys	Asp 100	Asn	Arg	Asn	Leu	Phe 105	Glu	Val	Gln	Glu	Asn 110	Glu	Pro
Gln	Lys	Leu 115	Val	Glu	Lys	Val	Ala 120	Gly	Asp	Ile	Glu	Ser 125	Leu	Leu	Asp
Arg	Lys 130	Val	Gln	Ala	Leu	Lys 135	Arg	Leu	Ala	Asp	Ala 140	Ala	Glu	Asn	Phe
Gln 145	Lys	Ala	His	Arg	Trp 150	Gln	Asp	Asn	Ile	Lys 155	Glu	Glu	Asp	Ile	Val 160
Tyr	Tyr	Asp	Ala	Lys 165	Ala	Asp	Ala	Glu	Leu 170	Asp	Asp	Pro	Glu	Ser 175	Glu
Asp	Val	Glu	Arg 180	Gly	Ser	Lys	Ala	Ser 185	Thr	Leu	Arg	Leu	Asp 190	Phe	Ile
Glu	Asp	Pro 195	Asn	Phe	Lys	Asn	Lys 200	Val	Asn	Tyr	Ser	Tyr 205	Ala	Ala	Val
Gln 210	Ile	Pro	Thr	Asp	Ile	Tyr 215	Lys	Gly	Ser	Thr	Val 220	Ile	Leu	Asn	Glu
Leu 225	Asn	Trp	Thr	Glu	Ala 230	Leu	Glu	Asn	Val	Phe 235	Met	Glu	Asn	Arg	Arg 240
Gln	Asp	Pro	Thr	Leu 245	Leu	Trp	Gln	Val	Phe 250	Gly	Ser	Ala	Thr	Gly 255	Val
Thr	Arg	Tyr 260	Tyr	Pro	Ala	Thr	Pro	Trp 265	Arg	Ala	Pro	Lys	Lys 270	Ile	Asp
Leu	Tyr	Asp 275	Val	Arg	Arg	Arg	Pro 280	Trp	Tyr	Ile	Gln	Gly 285	Ala	Ser	Ser
Pro 290	Lys	Asp	Met	Val	Ile	Ile 295	Val	Asp	Val	Ser	Gly 300	Ser	Val	Ser	Gly
Leu 305	Thr	Leu	Lys	Leu	Met 310	Lys	Thr	Ser	Val	Cys 315	Glu	Met	Leu	Asp	Thr 320
Leu	Ser	Asp	Asp	Asp 325	Tyr	Val	Asn	Val	Ala 330	Ser	Phe	Asn	Glu	Lys 335	Ala
Gln	Pro	Val	Ser 340	Cys	Phe	Thr	His	Leu 345	Val	Gln	Ala	Asn 350	Val	Arg	Asn
Lys	Lys 355	Val	Phe	Lys	Glu	Ala	Val 360	Gln	Gly	Met	Val	Ala 365	Lys	Gly	Thr



## 1801.app

Thr	Gly	Tyr	Lys	Ala	Gly	Phe	Glu	Tyr	Ala	Phe	Asp	Gln	Leu	Gln	Asn
	370					375					380				
Ser	Asn	Ile	Thr	Arg	Ala	Asn	Cys	Asn	Lys	Met	Ile	Met	Met	Phe	Thr
385					390					395					400
Asp	Gly	Gly	Glu	Asp	Arg	Val	Gln	Asp	Val	Phe	Glu	Lys	Tyr	Asn	Trp
				405					410					415	
Pro	Asn	Arg	Thr	Val	Arg	Val	Phe	Thr	Phe	Ser	Val	Gly	Gln	His	Asn
			420					425					430		
Tyr	Asp	Val	Thr	Pro	Leu	Gln	Trp	Met	Ala	Cys	Ala	Asn	Lys	Gly	Tyr
		435					440					445			
Tyr	Phe	Glu	Ile	Pro	Ser	Ile	Gly	Ala	Ile	Arg	Ile	Asn	Thr	Gln	Glu
	450					455					460				
Tyr	Leu	Asp	Val	Leu	Gly	Arg	Pro	Met	Val	Leu	Ala	Gly	Lys	Glu	Ala
465					470					475					480
Lys	Gln	Val	Gln	Trp	Thr	Asn	Val	Tyr	Glu	Asp	Ala	Leu	Gly	Leu	Gly
				485					490					495	
Leu	Val	Val	Thr	Gly	Thr	Leu	Pro	Val	Phe	Asn	Leu	Thr	Gln	Asp	Gly
			500					505					510		
Pro	Gly	Glu	Lys	Lys	Asn	Gln	Leu	Ile	Leu	Gly	Val	Met	Gly	Ile	Asp
		515					520					525			
Val	Ala	Leu	Asn	Asp	Ile	Lys	Arg	Leu	Thr	Pro	Asn	Tyr	Thr	Leu	Gly
	530					535					540				
Ala	Asn	Gly	Tyr	Val	Phe	Ala	Ile	Asp	Leu	Asn	Gly	Tyr	Val	Leu	Leu
545					550					555					560
His	Pro	Asn	Leu	Lys	Pro	Gln	Thr	Thr	Asn	Phe	Arg	Glu	Pro	Val	Thr
				565					570					575	
Leu	Asp	Phe	Leu	Asp	Ala	Glu	Leu	Glu	Asp	Glu	Asn	Lys	Glu	Glu	Ile
			580					585					590		
Arg	Arg	Ser	Met	Ile	Asp	Gly	Asn	Lys	Gly	His	Lys	Gln	Ile	Arg	Thr
		595					600					605			
Leu	Val	Lys	Ser	Leu	Asp	Glu	Arg	Tyr	Ile	Asp	Glu	Val	Thr	Arg	Asn
	610					615					620				
Tyr	Thr	Trp	Val	Pro	Ile	Arg	Ser	Thr	Asn	Tyr	Ser	Leu	Gly	Leu	Val
625					630					635					640
Leu	Pro	Pro	Tyr	Ser	Thr	Phe	Tyr	Leu	Gln	Ala	Asn	Leu	Ser	Asp	Gln
				645					650					655	
Ile	Leu	Gln	Val	Lys	Tyr	Phe	Glu	Phe	Leu	Leu	Pro	Ser	Ser	Phe	Glu

660					665					670					
Ser	Glu	Gly	His	Val	Phe	Ile	Ala	Pro	Arg	Glu	Tyr	Cys	Lys	Asp	Leu
		675					680					685			
Asn	Ala	Ser	Asp	Asn	Asn	Thr	Glu	Phe	Leu	Lys	Asn	Phe	Ile	Glu	Leu
	690					695					700				
Met	Glu	Lys	Val	Thr	Pro	Asp	Ser	Lys	Gln	Cys	Asn	Asn	Phe	Leu	Leu
705					710					715					720
His	Asn	Leu	Ile	Leu	Asp	Thr	Gly	Ile	Thr	Gln	Gln	Leu	Val	Glu	Arg
				725					730					735	
Val	Trp	Arg	Asp	Gln	Asp	Leu	Asn	Thr	Tyr	Ser	Leu	Leu	Ala	Val	Phe
			740					745					750		
Ala	Ala	Thr	Asp	Gly	Gly	Ile	Thr	Arg	Val	Phe	Pro	Asn	Lys	Ala	Ala
		755					760					765			
Glu	Asp	Trp	Thr	Glu	Asn	Pro	Glu	Pro	Phe	Asn	Ala	Ser	Phe	Tyr	Arg
	770					775					780				
Arg	Ser	Leu	Asp	Asn	His	Gly	Tyr	Val	Phe	Lys	Pro	Pro	His	Gln	Asp
785					790					795					800
Ala	Leu	Leu	Arg	Pro	Leu	Glu	Leu	Glu	Asn	Asp	Thr	Val	Gly	Ile	Leu
				805					810					815	
Val	Ser	Thr	Ala	Val	Glu	Leu	Ser	Leu	Gly	Arg	Arg	Thr	Leu	Arg	Pro
			820					825					830		
Ala	Val	Val	Gly	Val	Lys	Leu	Asp	Leu	Glu	Ala	Trp	Ala	Glu	Lys	Phe
		835					840					845			
Lys	Val	Leu	Ala	Ser	Asn	Arg	Thr	His	Gln	Asp	Gln	Pro	Gln	Lys	Cys
	850					855					860				
Gly	Pro	Asn	Ser	His	Cys	Glu	Met	Asp	Cys	Glu	Val	Asn	Asn	Glu	Asp
865					870					875					880
Leu	Leu	Cys	Val	Leu	Ile	Asp	Asp	Gly	Gly	Phe	Leu	Val	Leu	Ser	Asn
				885					890					895	
Gln	Asn	His	Gln	Trp	Asp	Gln	Val	Gly	Arg	Phe	Phe	Ser	Glu	Val	Asp
			900					905					910		
Ala	Asn	Leu	Met	Leu	Ala	Leu	Tyr	Asn	Asn	Ser	Phe	Tyr	Thr	Arg	Lys
		915					920					925			
Glu	Ser	Tyr	Asp	Tyr	Gln	Ala	Ala	Cys	Ala	Pro	Gln	Pro	Pro	Gly	Asn
	930					935					940				
Leu	Gly	Ala	Ala	Pro	Arg	Gly	Val	Phe	Val	Pro	Thr	Val	Ala	Asp	Phe
945					950					955					960

## 1801.app

Leu Asn Leu Ala Trp Trp Thr Ser Ala Ala Trp Ser Leu Phe Gln  
                             965                            970                            975  
 Gln Leu Leu Tyr Gly Leu Ile Tyr His Ser Trp Phe Gln Ala Asp Pro  
                             980                            985                            990  
 Ala Glu Ala Glu Gly Ser Pro Glu Thr Arg Glu Ser Ser Cys Val Met  
                             995                            1000                            1005  
 Lys Gln Thr Gln Tyr Tyr Phe Gly Ser Val Asn Ala Ser Tyr Asn Ala  
             1010                            1015                            1020  
 Ile Ile Asp Cys Gly Asn Cys Ser Arg Leu Phe His Ala Gln Arg Leu  
     1025                            1030                            1035                            1040  
 Thr Asn Thr Asn Leu Leu Phe Val Val Ala Glu Lys Pro Leu Cys Ser  
                             1045                            1050                            1055  
 Gln Cys Glu Ala Gly Arg Leu Leu Gln Lys Glu Thr His Cys Pro Ala  
                             1060                            1065                            1070  
 Asp Gly Pro Glu Gln Cys Glu Leu Val Gln Arg Pro Arg Tyr Arg Arg  
             1075                            1080                            1085  
 Gly Pro His Ile Cys Phe Asp Tyr Asn Ala Thr Glu Asp Thr Ser Asp  
             1090                            1095                            1100  
 Cys Gly Arg Gly Ala His His His His His His  
     1105                            1110                            1115

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 <211> 1077  
 <212> PRT  
 <213> Mus musculus

<400> 24

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 Leu Leu Ala Thr Ala Leu Leu Tyr Ala Ala Leu Gly Asp Val Val Arg  
                             20                            25                            30  
 Ser Glu Gln Gln Ile Pro Leu Ser Val Val Lys Leu Trp Ala Ser Ala  
             35                            40                            45  
 Phe Gly Gly Glu Ile Lys Ser Ile Ala Ala Lys Tyr Ser Gly Ser Gln  
             50                            55                            60  
 Leu Leu Gln Lys Lys Tyr Lys Glu Tyr Glu Lys Asp Val Ala Ile Glu  
             65                            70                            75                            80  
 Glu Ile Asp Gly Leu Gln Leu Val Lys Lys Leu Ala Lys Ile Met Glu  
                             85                            90                            95

## 1801.app

Glu	Met	Phe	His	Lys	Lys	Ser	Glu	Ala	Val	Arg	Arg	Leu	Val	Glu	Ala	
			100					105					110			
Ala	Glu	Glu	Ala	His	Leu	Lys	His	Glu	Phe	Asp	Ala	Asp	Leu	Gln	Tyr	
		115					120					125				
Glu	Tyr	Phe	Asn	Ala	Val	Leu	Ile	Asn	Glu	Arg	Asp	Lys	Asp	Gly	Asn	
	130					135					140					
Phe	Leu	Glu	Leu	Gly	Lys	Glu	Phe	Ile	Leu	Ala	Pro	Asn	Asp	His	Phe	
145					150					155					160	
Asn	Asn	Leu	Pro	Val	Asn	Ile	Ser	Leu	Ser	Asp	Val	Gln	Val	Pro	Thr	
				165					170					175		
Asn	Met	Tyr	Asn	Lys	Asp	Pro	Ala	Ile	Val	Asn	Gly	Val	Tyr	Trp	Ser	
			180					185					190			
Glu	Ser	Leu	Asn	Lys	Val	Phe	Val	Asp	Asn	Phe	Asp	Arg	Asp	Pro	Ser	
		195					200					205				
Leu	Ile	Trp	Gln	Tyr	Phe	Gly	Ser	Ala	Lys	Gly	Phe	Phe	Arg	Gln	Tyr	
	210					215					220					
Pro	Gly	Ile	Lys	Trp	Glu	Pro	Asp	Glu	Asn	Gly	Val	Ile	Ala	Phe	Asp	
225					230					235					240	
Cys	Arg	Asn	Arg	Lys	Trp	Tyr	Ile	Gln	Ala	Ala	Thr	Ser	Pro	Lys	Asp	
				245					250					255		
Val	Val	Ile	Leu	Val	Asp	Val	Ser	Gly	Ser	Met	Lys	Gly	Leu	Arg	Leu	
			260					265					270			
Thr	Ile	Ala	Lys	Gln	Thr	Val	Ser	Ser	Ile	Leu	Asp	Thr	Leu	Gly	Asp	
		275					280					285				
Asp	Asp	Phe	Phe	Asn	Ile	Ile	Thr	Tyr	Asn	Glu	Glu	Leu	His	Tyr	Val	
	290					295					300					
Glu	Pro	Cys	Leu	Asn	Gly	Thr	Leu	Val	Gln	Ala	Asp	Arg	Thr	Asn	Lys	
305					310					315					320	
Glu	His	Phe	Arg	Glu	His	Leu	Asp	Lys	Leu	Phe	Ala	Lys	Gly	Ile	Gly	
				325					330					335		
Met	Leu	Asp	Ile	Ala	Leu	Asn	Glu	Ala	Phe	Asn	Ile	Leu	Ser	Asp	Phe	
			340					345					350			
Asn	His	Thr	Gly	Gln	Gly	Ser	Ile	Cys	Ser	Gln	Ala	Ile	Met	Leu	Ile	
		355					360					365				
Thr	Asp	Gly	Ala	Val	Asp	Thr	Tyr	Asp	Thr	Ile	Phe	Ala	Lys	Tyr	Asn	
	370					375					380					
Trp	Pro	Asp	Arg	Lys	Val	Arg	Ile	Phe	Thr	Tyr	Leu	Ile	Gly	Arg	Glu	
385					390					395					400	

## 1801.app

Ala	Ala	Phe	Ala	Asp 405	Asn	Leu	Lys	Trp	Met 410	Ala	Cys	Ala	Asn	Lys 415	Gly	
Phe	Phe	Thr	Gln 420	Ile	Ser	Thr	Leu	Ala 425	Asp	Val	Gln	Glu	Asn 430	Val	Met	
Glu	Tyr	Leu 435	His	Val	Leu	Ser	Arg 440	Pro	Lys	Val	Ile	Asp 445	Gln	Glu	His	
Asp	Val 450	Val	Trp	Thr	Glu	Ala 455	Tyr	Ile	Asp	Ser	Thr 460	Leu	Pro	Gln	Ala	
Gln 465	Lys	Leu	Ala	Asp	Asp 470	Gln	Gly	Leu	Val	Leu 475	Met	Thr	Thr	Val	Ala 480	
Met	Pro	Val	Phe	Ser 485	Lys	Gln	Asn	Glu	Thr 490	Arg	Ser	Lys	Gly	Ile 495	Leu	
Leu	Gly	Val	Val 500	Gly	Thr	Asp	Val	Pro 505	Val	Lys	Glu	Leu	Leu 510	Lys	Thr	
Ile	Pro	Lys 515	Tyr	Lys	Leu	Gly	Ile 520	His	Gly	Tyr	Ala	Phe 525	Ala	Ile	Thr	
Asn 530	Asn	Gly	Tyr	Ile	Leu	Thr 535	His	Pro	Glu	Leu	Arg 540	Pro	Leu	Tyr	Glu	
Glu 545	Gly	Lys	Lys	Arg	Arg 550	Lys	Pro	Asn	Tyr	Ser 555	Ser	Val	Asp	Leu	Ser 560	
Glu	Val	Glu	Trp	Glu 565	Asp	Arg	Asp	Asp	Val 570	Leu	Arg	Asn	Ala	Met 575	Val	
Asn	Arg	Lys	Thr 580	Gly	Lys	Phe	Ser	Met 585	Glu	Val	Lys	Lys	Thr 590	Val	Asp	
Lys	Gly	Lys 595	Arg	Val	Leu	Val	Met 600	Thr	Asn	Asp	Tyr	Tyr 605	Tyr	Thr	Asp	
Ile 610	Lys	Gly	Thr	Pro	Phe	Ser 615	Leu	Gly	Val	Ala	Leu 620	Ser	Arg	Gly	His	
Gly 625	Lys	Tyr	Phe	Phe	Arg 630	Gly	Asn	Val	Thr	Ile 635	Glu	Glu	Gly	Leu	His 640	
Asp	Leu	Glu	His	Pro 645	Asp	Val	Ser	Leu	Ala 650	Asp	Glu	Trp	Ser	Tyr 655	Cys	
Asn	Thr	Asp	Leu 660	His	Pro	Glu	His	Arg 665	His	Leu	Ser	Gln	Leu 670	Glu	Ala	
Ile	Lys	Leu 675	Tyr	Leu	Lys	Gly	Lys 680	Glu	Pro	Leu	Leu	Gln 685	Cys	Asp	Lys	
Glu	Leu	Ile	Gln	Glu	Val	Leu	Phe	Asp	Ala	Val	Val	Ser	Ala	Pro	Ile	

## 1801.app

690					695					700					
Glu 705	Ala	Tyr	Trp	Thr	Ser 710	Leu	Ala	Leu	Asn 715	Lys	Ser	Glu	Asn	Ser	Asp 720
Lys	Gly	Val	Glu	Val 725	Ala	Phe	Leu	Gly	Thr 730	Arg	Thr	Gly	Leu	Ser	Arg 735
Ile	Asn	Leu	Phe 740	Val	Gly	Ala	Glu	Gln 745	Leu	Thr	Asn	Gln	Asp 750	Phe	Leu
Lys	Ala	Gly 755	Asp	Lys	Glu	Asn	Ile 760	Phe	Asn	Ala	Asp	His 765	Phe	Pro	Leu
Trp	Tyr 770	Arg	Arg	Ala	Ala	Glu 775	Gln	Ile	Ala	Gly	Ser 780	Phe	Val	Tyr	Ser
Ile 785	Pro	Phe	Ser	Thr	Gly 790	Thr	Val	Asn	Lys	Ser 795	Asn	Val	Val	Thr	Ala 800
Ser	Thr	Ser	Ile	Gln 805	Leu	Leu	Asp	Glu	Arg 810	Lys	Ser	Pro	Val	Val	Ala 815
Ala	Val	Gly	Ile 820	Gln	Met	Lys	Leu	Glu 825	Phe	Phe	Gln	Arg	Lys 830	Phe	Trp
Thr	Ala	Ser 835	Arg	Gln	Cys	Ala	Ser 840	Leu	Asp	Gly	Lys	Cys 845	Ser	Ile	Ser
Cys	Asp 850	Asp	Glu	Thr	Val	Asn 855	Cys	Tyr	Leu	Ile	Asp 860	Asn	Asn	Gly	Phe
Ile 865	Leu	Val	Ser	Glu	Asp 870	Tyr	Thr	Gln	Thr	Gly 875	Asp	Phe	Phe	Gly	Glu 880
Val	Glu	Gly	Ala	Val 885	Met	Asn	Lys	Leu 890	Leu	Thr	Met	Gly	Ser	Phe	Lys 895
Arg	Ile	Thr	Leu 900	Tyr	Asp	Tyr	Gln	Ala 905	Met	Cys	Arg	Ala	Asn 910	Lys	Glu
Ser	Ser	Asp 915	Ser	Ala	His	Gly	Leu 920	Leu	Asp	Pro	Tyr	Lys 925	Ala	Phe	Leu
Ser	Ala	Ala	Lys	Trp	Ile	Met 935	Thr	Glu	Leu	Val	Leu	Phe	Leu	Val	Glu 940
Phe 945	Asn	Leu	Cys	Ser	Trp 950	Trp	His	Ser	Asp	Met 955	Thr	Ala	Lys	Ala	Gln 960
Lys	Leu	Lys	Gln	Thr 965	Leu	Glu	Pro	Cys	Asp 970	Thr	Glu	Tyr	Pro	Ala	Phe 975
Val	Ser	Glu	Arg 980	Thr	Ile	Lys	Glu	Thr 985	Thr	Gly	Asn	Ile	Ala 990	Cys	Glu

1801.app

Asp	Cys	Ser	Lys	Ser	Phe	Val	Ile	Gln	Gln	Ile	Pro	Ser	Ser	Asn	Leu
		995					1000					1005			
Phe	Met	Val	Val	Val	Asp	Ser	Ser	Cys	Leu	Cys	Glu	Ser	Val	Ala	Pro
	1010					1015					1020				
Ile	Thr	Met	Ala	Pro	Ile	Glu	Ile	Arg	Tyr	Asn	Glu	Ser	Leu	Lys	Cys
1025					1030					1035				1040	
Glu	Arg	Leu	Lys	Ala	Gln	Lys	Ile	Arg	Arg	Arg	Pro	Glu	Ser	Cys	His
			1045						1050					1055	
Gly	Phe	His	Pro	Glu	Glu	Asn	Ala	Arg	Glu	Cys	Gly	Gly	Ala	Ser	His
		1060						1065					1070		
His	His	His	His	His											
		1075													

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 24

<210> 26  
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 <212> DNA  
 <213> Artificial Sequence

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 <223> Description of Artificial Sequence: primer

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 49

<210> 27  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

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23

<210> 28

<211> 43

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: primer

<400> 28

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43